



Currently pending claims of your application

1 1. A method of establishing a network resources reservation for an anticipated traffic flow  
2 along a path in a network between an anticipated source and an anticipated receiver of the  
3 traffic flow, wherein the anticipated receiver otherwise cannot facilitate establishing the  
4 network resources reservation, the method comprising the steps of:  
5 storing, at the proxy node, policy information defining whether the proxy node should  
6 initiate network resources reservations for particular traffic flows;  
7 detecting a first RSVP Path message associated with the anticipated receiver of the  
8 anticipated traffic flow at a router, acting as a proxy node, located within the path;  
9 determining, at the proxy node and based on the policy information stored at the proxy  
10 node and without receiving the policy information from a policy server residing  
11 on the network, whether to establish the network resources reservation;  
12 generating, at the proxy node, an RESV message to reserve network resources for the  
13 anticipated traffic flow;  
14 communicating the RESV message to the anticipated source of the anticipated traffic  
15 flow;  
16 wherein the step of determining, at the proxy node, whether to establish the network  
17 resources reservation includes the steps of:  
18 determining one or more network parameter values associated with the anticipated  
19 traffic flow;  
20 determining one or more transport parameter values associated with the  
21 anticipated traffic flow;  
22 determining next and previous hop parameter values associated with the  
23 anticipated traffic flow; and  
24 correlating at least one of the ascertained network parameter, transport parameter,  
25 next hop parameter, and previous hop parameter values with information  
26 defining a relationship between them and whether a RESV message is  
27 desired.

- 1 2. A method as recited in claim 1, further comprising the step of determining one or more  
2 device and traffic parameter values associated with the anticipated traffic flow, and  
3 wherein the step of generating the RESV message comprises the step of generating the  
4 RESV message based on at least one of the device and traffic parameter values.
- 1 3. (Cancelled).
- 1 4. A method as recited in claim 1, further comprising the step of, concurrently with the  
2 generating and communicating steps, forwarding a second RSVP Path message to one or  
3 more devices that are along the anticipated path and that are between the proxy node and  
4 the anticipated receiver, wherein the second RSVP Path message defines a different set of  
5 traffic characteristics for the flow initiated by the sender than the first RSVP message.
- 1 5. A method as recited in claim 1, wherein determining the network parameter values and  
2 ascertaining the transport parameter values includes the steps of determining at least one  
3 of the source and receiver IP addresses, source and receiver port numbers, and transport  
4 protocol based on values carried in objects in the first RSVP Path message.
- 1 6. A method as recited in claim 1, wherein determining the anticipated traffic flow  
2 characteristics includes determining at least one of the rate and size of packets associated  
3 with the anticipated traffic flow.
- 1 7. A method as recited in claim 1, further comprising the steps of extracting one or more  
2 additional anticipated traffic flow attributes from the first RSVP Path message.
- 1 8. A method as recited in claim 7, wherein the anticipated receiver is an IP phone, and  
2 further comprising the step of determining at least one quality of service parameter  
3 associated with the anticipated traffic flow.

1 9. (Canceled)

1 10. A method as recited in claim 1, wherein the step of detecting an RSVP Path message  
2 comprises the step of detecting the first RSVP Path message associated with the  
3 anticipated receiver of the anticipated traffic flow at a proxy node that is logically  
4 positioned adjacent to the path.

1 11. A computer readable medium comprising one or more sequences of instructions for  
2 facilitating an RSVP reservation process, for an anticipated traffic flow anticipated to be  
3 received by an anticipated receiver that cannot facilitate an RSVP reservation process for  
4 the anticipated traffic flow, wherein when the instructions are executed by one or more  
5 processors, the instructions cause the one or more processors to carry out the steps of:  
6 storing, at the proxy node, policy information defining whether the proxy node should  
7 initiate network resources reservations for particular traffic flows;  
8 detecting a first RSVP Path message associated with the anticipated receiver of the  
9 anticipated traffic flow at a router, acting as a proxy node, located within the path;  
10 determining, at the proxy node and based on the policy information stored at the proxy  
11 node and without receiving the policy information from a policy server residing  
12 on the network, whether to establish the network resources reservation;  
13 generating, at the proxy node, an RESV message to reserve network resources for the  
14 anticipated traffic flow;  
15 communicating the RESV message to the anticipated source of the anticipated traffic  
16 flow;  
17 wherein the step of determining, at the proxy node, whether to establish the network  
18 resources reservation includes the steps of:  
19 determining one or more network parameter values associated with the anticipated  
20 traffic flow;  
21 determining one or more transport parameter values associated with the  
22 anticipated traffic flow;

23 determining next and previous hop parameter values associated with the  
24 anticipated traffic flow; and  
25 correlating at least one of the ascertained network parameter, transport parameter,  
26 next hop parameter, and previous hop parameter values with information  
27 defining a relationship between them and whether a RESV message is  
28 desired.

1 12. A computer-readable medium as recited in claim 11, further comprising the step of  
2 determining one or more device and traffic parameter values associated with the  
3 anticipated traffic flow, and wherein the step of generating the RESV message comprises  
4 the step of generating the RESV message based on at least one of the device and traffic  
5 parameter values.

1 13. (Cancelled).

1 14. A computer-readable medium as recited in claim 11,  
2 further comprising the steps of, concurrently with the generating and communicating  
3 steps, forwarding a second RSVP Path message to one or more devices that are  
4 along the anticipated path and that are between the proxy node and the anticipated  
5 receiver, wherein the second RSVP Path message defines a different set of traffic  
6 characteristics for the flow initiated by the sender than the first RSVP message.

1 15. A computer-readable medium as recited in claim 11, wherein determining the network  
2 parameter values and ascertaining the transport parameter values includes the steps of  
3 determining at least one of the source and receiver IP addresses, source and receiver port  
4 numbers, and transport protocol based on values carried in objects in the first RSVP Path  
5 message.

1 16. A computer-readable medium as recited in claim 11, wherein determining the anticipated  
2 traffic flow characteristics includes determining at least one of the rate and size of packets  
3 associated with the anticipated traffic flow.

- 1 17. A computer-readable medium as recited in claim 11, further comprising the steps of  
2 extracting one or more additional anticipated traffic flow attributes from the first RSVP  
3 Path message.
- 1 18. A computer-readable medium as recited in claim 17, wherein the anticipated receiver is  
2 an IP phone, and further comprising the step of determining at least one quality of service  
3 parameter associated with the anticipated traffic flow.
- 1 19. (Canceled)
- 1 20. A computer-readable medium as recited in claim 11, wherein the step of detecting an  
2 RSVP Path message comprises the step of detecting the first RSVP Path message  
3 associated with the anticipated receiver of the anticipated traffic flow at a proxy node that  
4 is logically positioned adjacent to the path.
- 1 21. A system for establishing a network resources reservation for an anticipated traffic flow  
2 along a path in a network between an anticipated source and an anticipated receiver of the  
3 traffic flow, wherein the anticipated receiver otherwise cannot facilitate establishing the  
4 network resources reservation, the system comprising:  
5 means for storing, at the proxy node, policy information defining whether the proxy node  
6 should initiate network resources reservations for particular traffic flows;  
7 means for detecting a first RSVP Path message associated with the anticipated receiver of  
8 the anticipated traffic flow at a router, acting as a proxy node, located within the  
9 path;  
10 means for determining, at the proxy node and based on the policy information stored at  
11 the proxy node and without receiving the policy information from a policy server  
12 residing on the network, whether to establish the network resources reservation;  
13 means for generating, at the proxy node, an RESV message to reserve network resources  
14 for the anticipated traffic flow;

means for communicating the RESV message to the anticipated source of the anticipated traffic flow; and  
wherein the means for determining, at the proxy node, whether to establish the network resources reservation includes:  
means for determining one or more network parameter values associated with the anticipated traffic flow;  
means for determining one or more transport parameter values associated with the anticipated traffic flow;  
means for determining next and previous hop parameter values associated with the anticipated traffic flow; and  
means for correlating at least one of the ascertained network parameter, transport parameter, next hop parameter, and previous hop parameter values with information defining a relationship between them and whether a RESV message is desired.

22. A network device that can establish a network resources reservation for an anticipated traffic flow along a path in a network between an anticipated source and an anticipated receiver of the traffic flow, wherein the anticipated receiver otherwise cannot facilitate establishing the network resources reservation, the network device comprising:  
a network interface;  
a processor coupled to the network interface and receiving network messages from the network through the network interface;  
a computer-readable medium comprising one or more stored sequences which, when executed by the processor, cause the processor to carry out the steps of:  
storing, at the proxy node, policy information defining whether the proxy node should initiate network resources reservations for particular traffic flows;  
detecting a first RSVP Path message associated with the anticipated receiver of the anticipated traffic flow at a router, acting as a proxy node, located within the path;  
determining, at the proxy node and based on the policy information stored at the proxy node and without receiving the policy information from a policy

17 server residing on the network, whether to establish the network resources  
18 reservation;  
19 generating, at the proxy node, an RESV message to reserve network resources for  
20 the anticipated traffic flow;  
21 communicating the RESV message to the anticipated source of the anticipated  
22 traffic flow; and  
23 wherein the step of determining, at the proxy node, whether to establish the  
24 network resources reservation comprises the steps of:  
25 determining one or more network parameter values associated with the anticipated  
26 traffic flow;  
27 determining one or more transport parameter values associated with the  
28 anticipated traffic flow;  
29 determining next and previous hop parameter values associated with the  
30 anticipated traffic flow; and  
31 correlating at least one of the ascertained network parameter, transport parameter,  
32 next hop parameter, and previous hop parameter values with information  
33 defining a relationship between them and whether a RESV message is  
34 desired.

1 23. A system as recited in claim 21, further comprising means for determining one or more  
2 device and traffic parameter values associated with the anticipated traffic flow, and  
3 wherein the means for generating the RESV message comprises means for generating the  
4 RESV message based on at least one of the device and traffic parameter values.

1 24. (Cancelled).

1 25. A system as recited in claim 21,  
2 further comprising means for forwarding, concurrently with operation of the means for  
3 generating and the means for communicating, a second RSVP Path message to  
4 one or more devices that are along the anticipated path and that are between the  
5 proxy node and the anticipated receiver, wherein the second RSVP Path message

6 defines a different set of traffic characteristics for the flow initiated by the sender  
7 than the first RSVP message.

1 26. A system as recited in claim 24, wherein the means for determining the network  
2 parameter values and ascertaining the transport parameter values includes means for  
3 determining at least one of the source and receiver IP addresses, source and receiver port  
4 numbers, and transport protocol based on values carried in objects in the first RSVP Path  
5 message.

1 27. A system as recited in claim 24, wherein the means for determining the anticipated traffic  
2 flow characteristics includes means for determining at least one of the rate and size of  
3 packets associated with the anticipated traffic flow.

1 28. A system as recited in claim 24, further comprising means for extracting one or more  
2 additional anticipated traffic flow attributes from the first RSVP Path message.

1 29. A system as recited in claim 27, wherein the anticipated receiver is an IP phone, and  
2 further comprising means for determining at least one quality of service parameter  
3 associated with the anticipated traffic flow.

1 30. A system as recited in claim 21, wherein the means for detecting an RSVP Path message  
2 comprises means for detecting a first RSVP Path message associated with the anticipated  
3 receiver of the anticipated traffic flow at a proxy node that is logically positioned adjacent  
4 to the path.

1 31. A network device as recited in claim 22, wherein the one or more stored sequences, when  
2 executed by the processor, cause the processor to further carry out the step of determining  
3 one or more device and traffic parameter values associated with the anticipated traffic  
4 flow, and wherein the step of generating the RESV message comprises the step of



5 generating the RESV message based on at least one of the device and traffic parameter  
6 values.

1 32. (Cancelled).

1 33. A network device as recited in claim 22,  
2 further comprising instructions for performing the step of, concurrently with the  
3 generating and communicating steps, forwarding a second RSVP Path message to  
4 one or more devices that are along the anticipated path and that are between the  
5 proxy node and the anticipated receiver, wherein the second RSVP Path message  
6 defines a different set of traffic characteristics for the flow initiated by the sender  
7 than the first RSVP message.

1 34. A network device as recited in claim 22, wherein determining the network parameter  
2 values and ascertaining the transport parameter values includes the steps of determining at  
3 least one of the source and receiver IP addresses, source and receiver port numbers, and  
4 transport protocol based on values carried in objects in the first RSVP Path message.

1 35. A network device as recited in claim 22, wherein determining the anticipated traffic flow  
2 characteristics includes determining at least one of the rate and size of packets associated  
3 with the anticipated traffic flow.

1 36. A network device as recited in claim 22, wherein the one or more stored sequences, when  
2 executed by the processor, cause the processor to further carry out the step of extracting  
3 one or more additional anticipated traffic flow attributes from the RSVP Path message.

1 37. A network device as recited in claim 36, wherein the anticipated receiver is an IP phone,  
2 and wherein the one or more stored sequences, when executed by the processor, cause the  
3 processor to further carry out the step of determining at least one quality of service  
4 parameter associated with the anticipated traffic flow.

- 1 38. A network device as recited in claim 22, wherein the step of detecting an RSVP Path
- 2 message comprises the step of detecting the first RSVP Path message associated with the
- 3 anticipated receiver of the anticipated traffic flow at a proxy node that is logically
- 4 positioned adjacent to the path.